IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Currently Amended): A higher olefin polymer having a polar group which is produced by subjecting to an incorporation reaction of a polar compound or halogen compound into a higher α-olefin polymer satisfying the requirements of the following (1) and (2), which is obtained by polymerizing one or more higher α-olefins having 10 or more carbon atoms or copolymerizing one or more higher α-olefins having 10 or more carbon atoms with one or more other olefins:[[.]]

(1) [[The]] the content of units of a higher α-olefin having 10 or more carbon atoms is 50 mol% or more;

(2) [[A]] a single peak X1 which is ascribed to crystallization of [[the]] a side chain derived from the higher α-olefin and observed at 15 deg < 2θ < 30 deg in a wide-angle X-ray scattering intensity distribution is observed.

Claim 2 (Currently Amended): The [[A]] higher olefin polymer having a polar group according to claim 1, wherein the higher olefin polymer having a polar group is produced by subjecting to an incorporation reaction of a polar compound or a halogen compound and a decomposer into a higher α-olefin polymer.

Claim 3 (Currently Amended): The [[A]] higher olefin polymer having a polar group according to claim 1, wherein the higher olefin polymer having a polar group satisfies the requirements of the following (3) and (4):[[.]]

(3) [[A]] a polystyrene conversion weight-average molecular weight (Mw) measured by gel permeation chromatography (GPC) ranges from 1,000 to 100,000 and the molecular weight distribution (Mw/Mn) is 1.5 or more;[[.]]

(4) [[A]] a polar group contents or halogen contents range from 0.01 to 70% by weight.

Claim 4 (Currently Amended): The [[A]] higher olefin polymer having a polar group according to claim 1, wherein the higher olefin polymer having a polar group satisfies the requirements of the following (3) and (4'):[[.]]

(3) [[A]] a polystyrene conversion weight-average molecular weight (Mw) by measured by gel permeation chromatography (GPC) ranges from 1,000 to 100,000 and the molecular weight distribution (Mw/Mn) is 1.5 or more;

(4') [[A]] a chlorine atom content ranges from 0.01 to 70% by weight.

Claim 5 (Currently Amended): The [[A]] higher olefin polymer having a polar group according to claim 1, wherein the higher olefin polymer having a polar group satisfies the requirements of the following (5) and (6):

(5) [[The]] the solubility into acetone/heptane (30/50 (volume ratio)) at 30°C at a polymer concentration from 10 to 20% by weight is 99% or more by weight;

(6) [[A]] a surface tension of wetting tension testing is in the range of 300 to 400μN/cm.

Claim 6 (Currently Amended): A method for producing a higher olefin polymer having a polar group which is obtained by polymerizing one or more higher α-olefins having 10 or more carbon atoms or copolymerizing one or more higher α-olefins having 10 or more carbon atoms with one or more other olefins to form a higher α-olefin polymer satisfying the requirements of the following (1) and (2) and subsequently subjecting to an incorporation reaction of a polar compound or halogen compound into the higher α-olefin polymer:[[.]]

(1) [[The]] the content of units of a higher α-olefin having 10 or more carbon atoms is 50 mol% or more;[[.]]

(2) [[A]] a single peak X1 which is observed at 15 deg<2θ<30 deg in a wide-angle X-ray scattering intensity distribution and is ascribed to crystallization of the side chain derived from the higher α-olefin is observed.

Claim 7 (Currently Amended): The [[A]] method for producing a higher olefin polymer having a polar group according to claim 6, wherein the method comprises obtaining the higher α-olefin polymer and subsequently subjecting to an incorporation reaction of a polar compound or a halogen compound and a decomposer.

Claim 8 (Currently Amended): The [[A]] method for producing a higher olefin polymer having a polar group according to claim 6, wherein the polar compound is at least one kind of compound[[s]] selected from the group consisting of anhydrous maleic acid, acrylic acid and acrylic ester.

Claim 9 (Currently Amended): The [[A]] method for producing a higher olefin polymer having a polar group according to claim 6, wherein the polar compound is at least one kind of ~~components~~ compound selected from the group consisting of chlorine [[or]] and a chlorine containing compound[[s]].

Claim 10 (New): An olefin polymer containing polar and/or halogen groups produced by:

polymerizing or copolymerizing one or more α-olefin(s) having 10 or more carbon atoms thus producing a higher α-olefin polymer that

(1) has a content of units of said one or more α-olefin(s) having 10 or more carbon atoms of 50 mol% or more; and

(2) forms a single peak X1 at 15 deg < 2θ < 30 deg as observed by wide-angle X-ray scattering intensity distribution; and

incorporating at least one polar compound and/or halogen into said higher α-olefin polymer, thus producing a higher α-olefin polymer containing polar and/or halogen groups.

Claim 11 (New): The olefin polymer containing polar and/or halogen groups of claim 10, comprising polymerizing or copolymerizing one or more α-olefin(s) having 10 to 35 carbon atoms, to produce the higher α-olefin polymer.

Claim 12 (New): The olefin polymer containing polar and/or halogen groups of claim 10, wherein (1) the higher α-olefin polymer has a content of units of said one or more α-olefin(s) having 10 or more carbon atoms of 70-100 mol%.

Claim 13 (New): The olefin polymer containing polar and/or groups of claim 10, wherein said polar groups are selected from the group consisting of fluorine, chlorine, bromine, an iodine.

Claim 14 (New): The olefin polymer containing polar and/or halogen groups of claim 10, wherein said polar groups are selected from the group consisting of an ester group, a carboxyl group, and derivatives thereof.

Claim 15 (New): The olefin polymer containing polar and/or halogen groups of claim 10, which:

(3) has a polystyrene conversion weight-average molecular weight (Mw) measured by gel permeation chromatography (GPC) ranging from 1,000 to 100,000 and the molecular weight distribution (Mw/Mn) is 1.5 or more; and

(4) has polar group content or halogen content ranging from 0.01 to 70% by weight.

Claim 16 (New): The olefin polymer containing polar and/or halogen groups of claim 10, which:

(3) has a polystyrene conversion weight-average molecular weight (Mw) as measured by gel permeation chromatography (GPC) ranging from 1,000 to 100,000 and the molecular weight distribution (Mw/Mn) is 1.5 or more; and

(4') a chlorine atom content ranging from 0.01 to 70% by weight.

Claim 17 (New): The olefin polymer containing polar and/or halogen groups of claim 10, which:

(5) has a solubility of 99% or more by weight as determined by dissolving 10 to 20% of said olefin polymer into acetone/heptane at a 30/50 volume ratio at 30°C; and

(6) has a surface wetting tension in the range of 300 to 400μN/cm.

Claim 18 (New): A method for producing an olefin polymer having polar and/or halogen groups comprising:

polymerizing one or more higher α-olefins having 10 or more carbon atoms or copolymerizing one or more higher α-olefins having 10 or more carbon atoms with one or more other olefins to form a higher α-olefin polymer satisfying the requirements of the following (1) and (2); and subsequently

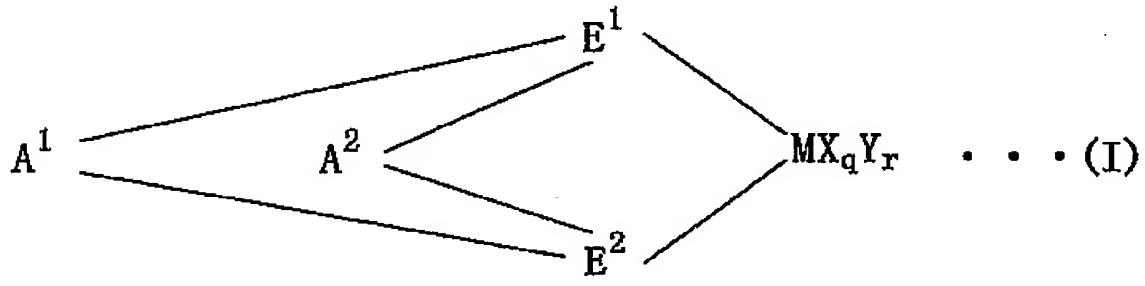
subjecting to an incorporation reaction of a polar compound or halogen compound into the higher α-olefin polymer; wherein requirements (1) and (2) are:

(1) the content of units of a higher α-olefin having 10 or more carbon atoms is 50 mol% or more; and

(2) a single peak X1 which is observed at 15 deg < 2θ < 30 deg in a wide-angle X-ray scattering intensity distribution and is ascribed to crystallization of the side chain derived from the higher α-olefin is observed.

Claim 19 (New): The method of claim 18, wherein said polymerizing one or more higher α-olefins having 10 or more carbon atoms or copolymerizing one or more higher α-olefins having 10 or more carbon atoms with one or more other olefins to form a higher α-olefin polymer is performed in the presence of a C1-symmetric or C2-symmetric transition metal catalyst.

Claim 20 (New): The method of claim 18, wherein said polymerizing one or more higher α-olefins having 10 or more carbon atoms or copolymerizing one or more higher α-olefins having 10 or more carbon atoms with one or more other olefins to form a higher α-olefin polymer is performed in the presence of a catalyst of formula (I):



(I)

wherein:

A^1 and A^2 each, independently, are divalent cross-linking groups that bond two ligands and are selected from the groups consisting of a hydrocarbon group having 1 to 20

carbon atoms, halogen-containing hydrocarbon group having 1-20 carbon atoms, a silicon-containing group, a germanium-containing group, a tin-containing group, -O-, -CO-, -S-, -SO_2-, -Se-, -NR^1-, -P R^1, -P(O)R^1-, B R^1, and Al R^1; wherein R^1, independently, represents a hydrogen atom, a halogen atom, a hydrocarbon group having 1-20 carbon atoms, or a halogen-containing hydrocarbon group having 1-20 carbon atoms;

E^1 and E^2, each, independently, represent a ligand selected from the group consisting of a substituted cyclopentadienyl group, an indenyl group, a substituted indenyl group, a heterocyclopentadienyl group, a substituted heterocyclopentadienylgroup, an amide group, a phosphine group, a hydrocarbon group, and a silicon-containing group, wherein E1 and E2 form a cross-linking structure via A^1 and A^2;

M represents a metal element of Groups 3-10 of the Periodic Table or the lanthanoid series;

X represents an α-binding ligand and when more than one X is present, X's may be different or the same and each X may cross-link with other X, E^1, E^2 or Y groups;

q is an integer of 1, 2, 3, 4, or 5;

Y represents a Lewis base, and when more than one Y is present, Y's may be the same or different and may cross-link with other Y, E^1, E^2, or X groups; and

r is an integer of 0, 1, 2 or 3.